

In the Claims

Applicant hereby submits amended claims, including a
5 complete listing of all claims in the application with the
status of each claim in parentheses.

CLAIMS:

Claims 1-17 (canceled)

10 18. (New) A reciprocating piston device comprising:

a piston-cylinder assembly having at least four pistons and
one case, said case having at least one section, each of said
pistons having an axis;

an oscillating intermediate shaft having a rotational axis,
15 said shaft kinematically connected to said pistons;

a crankshaft kinematically connected to said intermediate
shaft, said crankshaft having one crank and carrying an element
transmitting rotation between said crankshaft and an adjacent
device;

20 at least one primary transmission mechanism connecting said
pistons and said intermediate shaft, each of said primary
transmission mechanisms and the pistons connected to it being
housed in one of said sections; and

a secondary transmission mechanism connecting said intermediate shaft and said crankshaft, said secondary transmission mechanism being housed in one of said sections.

5 19. (New) The device of Claim 1, wherein

the axes of said pistons are arranged in one plane, said plane being parallel to the axis of said intermediate shaft, each said piston axis having two pistons, said two pistons being connected by a general piston rod;

10 said primary transmission mechanism comprises a pinion secured on said intermediate shaft, and said general piston rod having a rack; and

said secondary transmission mechanism comprises a pinion secured on said intermediate shaft, a slide block having a rack,
15 and a connecting rod, said connecting rod being connected to said slide block on one end and to said crankshaft crank on another end.

20. (New) The device of Claim 2, further comprising at least
20 one additional piston, said additional piston connected to its own piston rod, said additional piston having an axis arranged on the same plane as the pistons connected by said general piston rod, each said additional piston having a primary

transmission mechanism comprising a pinion secured on said intermediate shaft and said piston rod having a rack.

21. (New) The device of claim 1, wherein

5 the axes of said pistons are arranged in two planes, said planes being parallel to the axis of said intermediate shaft, each said piston axis having two pistons, said two pistons being connected by a general piston rod;

said primary transmission mechanism comprises a pinion
10 secured on said intermediate shaft and two said general piston rods, each rod having a rack; and

said secondary transmission mechanism comprises a pinion secured on said intermediate shaft, a slide block having a rack, and a connecting rod, said connecting rod being connected to
15 said slide block on one end and to said crankshaft crank on another end.

22. (New) The device of Claim 4, further comprising at least two additional pistons, said pistons connected to their own
20 piston rods and having axes arranged on the same planes as the pistons connected by said general piston rods, each two said additional pistons having a primary transmission mechanism comprising a pinion secured on said intermediate shaft and two said piston rods, each rod having a rack.

23. (New) The device of claim 1, wherein

the axes of said pistons are arranged in two planes, said planes being parallel to the axis of said intermediate shaft, each said piston axis having two pistons, said two pistons being connected by a general piston rod;

said primary transmission mechanism comprises a double-armed lever secured on said intermediate shaft, two said general piston rods, and two shackles connecting said double-armed lever and each of said general piston rods; and

said secondary transmission mechanism comprises a single-armed lever secured on said intermediate shaft, and a connecting rod, said connecting rod being connected to said single-armed lever on one end and to said crankshaft crank on another end.

24. (New) A reciprocating piston device comprising:

a piston-cylinder assembly having at least four pistons and one case, said case having at least one section, each of said pistons having an axis;

an oscillating intermediate shaft having a rotational axis, said shaft kinematically connected to said pistons;

a crankshaft kinematically connected to said intermediate shaft, said crankshaft having one crank and carrying an element

transmitting rotation between said crankshaft and an adjacent device;

at least one primary transmission mechanism connecting said pistons and said intermediate shaft, each of said primary
5 transmission mechanisms and the pistons connected to it being housed in one of said sections; and

a secondary transmission mechanism connecting said intermediate shaft and said crankshaft, said secondary transmission mechanism being housed in one of said sections
10 having a chamber, said chamber having an opening closed by a cover.

25. (New) The device of Claim 7, wherein

the axes of said pistons are arranged in one plane, said plane being parallel to the axis of said intermediate shaft,
15 each said piston axis having two pistons, said two pistons being connected by a general piston rod;

said primary transmission mechanism comprises a pinion secured on said intermediate shaft, and said general piston rod having a rack; and

20 said secondary transmission mechanism comprises a pinion secured on said intermediate shaft, a slide block having a rack, and a connecting rod, said connecting rod being connected to

said slide block on one end and to said crankshaft crank on another end.

26. (New) The device of Claim 8, further comprising at least one additional piston, said additional piston connected to its own piston rod and having an axis arranged on the same plane as the pistons connected by said general piston rod, each said additional piston having a primary transmission mechanism comprising a pinion secured on said intermediate shaft and said piston rod having a rack.

27. (New) The device of claim 7, wherein the axes of said pistons are arranged in two planes, said planes being parallel to the axis of said intermediate shaft, each said piston axis having two pistons, said two pistons being connected by a general piston rod;

said primary transmission mechanism comprises a pinion secured on said intermediate shaft and two said general piston rods, each rod having a rack; and

said secondary transmission mechanism comprises a pinion secured on said intermediate shaft, a slide block having a rack, and a connecting rod, said connecting rod being connected to said slide block on one end and to said crankshaft crank on another end.

28. (New) The device of Claim 10, further comprising at least two additional pistons, said pistons connected to their own piston rods and having axes arranged on the same planes as the pistons connected by said general piston rods, each two said
5 additional pistons having a primary transmission mechanism comprising a pinion secured on said intermediate shaft and two said piston rods, each rod having a rack.

29. (New) The device of claim 7, wherein

10 the axes of said pistons are arranged in two planes, said planes being parallel to the axis of said intermediate shaft, each said piston axis having two pistons, said two pistons being connected by a general piston rod;

said primary transmission mechanism comprises a double-armed
15 lever secured on said intermediate shaft, two general piston rods, and two shackles connecting said double-armed lever and each of said general piston rods; and

said secondary transmission mechanism comprises a single-armed lever secured on said intermediate shaft, and a connecting
20 rod, said connecting rod being connected to said single-armed lever on one end and to said crankshaft crank on another end.

30. (New) A reciprocating piston device comprising:

a piston-cylinder assembly having at least six pistons,
said pistons being arranged by groups each having six pistons
including four principal and two auxiliary pistons, said
assembly having at least one said group, each of said pistons
5 having an axis, each said piston axis having two pistons
connected by a general piston rod;

an oscillating intermediate shaft having a rotational axis,
said shaft kinematically connected to said four principal
pistons in each said group;

10 a crankshaft kinematically connected to said intermediate
shaft, said crankshaft having one crank and carrying an element
transmitting rotation between said crankshaft and an adjacent
device;

at least one primary transmission mechanism connecting said
15 principal pistons and said intermediate shaft;

a secondary transmission mechanism connecting said
intermediate shaft and said crankshaft; and

a tertiary transmission mechanism connecting two of said
principal pistons and two of said auxiliary pistons.

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31. (New) The device of Claim 13, wherein

said primary transmission mechanism comprises a pinion
secured on said intermediate shaft and two said general piston
rods, each said rod having a rack;

said secondary transmission mechanism comprises a pinion secured on said intermediate shaft, a slide block having a rack, and a connecting rod, said connecting rod being connected to said slide block on one end and to said crankshaft crank on another end; and

said tertiary transmission mechanism comprises a pinion and two said general piston rods, each said rod having a rack.

32. (New) A reciprocating piston device comprising:

a piston-cylinder assembly having at least four pistons, said pistons being arranged by groups each having two pistons, said assembly having at least two said groups, each of said pistons having an axis, each said piston axis having one piston;

an oscillating intermediate shaft having a rotational axis, said shaft kinematically connected to said pistons;

a crankshaft kinematically connected to said intermediate shaft, said crankshaft having one crank and carrying an element transmitting rotation between said crankshaft and an adjacent device;

at least one primary transmission mechanism connecting two of said pistons and said intermediate shaft, said primary transmission mechanism having a double-armed lever secured on said intermediate shaft and two links connecting each of said pistons and said double-armed lever; and

a secondary transmission mechanism connecting two of said
pistons, said intermediate shaft and said crankshaft, said
secondary transmission mechanism having a three-armed lever
secured on said intermediate shaft, two links connecting each of
5 said pistons and one arm of said three-armed lever, and a
connecting rod, said rod connecting the third arm of said three-
armed lever and said crankshaft crank.

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